

AMENDMENTS

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of the claims in the application:

Listing of Claims:

1. (Cancelled) Method for monitoring a reciprocating compressor, comprising the following steps:
 - receiving a plurality of signals corresponding to parameters relating to the operating state of the compressor,
 - comparing the measured values of these parameters with critical values contained in a database,
 - sending a signal according to the match between the measured values and the critical values, the signal representing an anomaly of the operating state of the compressor.
2. (Cancelled) Method according to Claim 1, in which the said database comprises a matrix in which each row represents critical values of the said parameters relating to the operating state of the compressor associated with a specific anomaly.
3. (Cancelled) System for monitoring a reciprocating compressor, comprising:
 - a unit for measuring parameters relating to the operating state of the compressor,
 - a processing unit for comparing the measured values of the parameters with critical values contained in a database associated with the said processing unit, and for sending a signal according to the match between the measured values and the critical values, this signal representing an anomaly of the operating state of the compressor.
4. (Cancelled) System according to Claim 3, in which the said database comprises a matrix in which each row represents critical values of the said parameters relating to the operating state of the compressor associated with a specific anomaly.

5. (Cancelled) System according to Claim 3, in which the said measuring unit comprises at least one sensor of at least one of the said parameters relating to the operating state of the compressor.
6. (New) A method for monitoring a reciprocating compressor, comprising:
reading from sensors associated with the reciprocating compressor data corresponding to measured parameters relating to an operating state of the reciprocating compressor;
reading manually entered data corresponding to manually entered parameters relating to the operating state of the reciprocating compressor;
reading from a first database reference parameters relating to the operating state of the reciprocating compressor;
performing a first comparison between the measured parameters, manually entered parameters, and the reference parameters;
performing a second comparison between the manually entered data and absolute values stored in the first database;
detecting whether an anomaly exists based on the first and second comparisons;
and
if an anomaly is detected in the first and second comparisons, performing a search in a second database to find a match of previously stored data correlated with predetermined anomalies and corresponding characteristics of the predetermined anomalies, and sending a signal according to the match, the signal indicating characteristics of the detected anomaly of the operating state of the reciprocating compressor.
7. (New) The method of claim 6, further comprising:
obtaining data from design specifications of the reciprocating compressor; and
performing a third comparison between the data from the design specifications and the data measured by the sensors to determine whether there is design conformity with the design specifications.

8. (New) The method of claim 7, further comprising receiving the results of the third comparison as inputs for a design program for the reciprocating compressor, wherein outputs of this design program comprises design parameters, and wherein the first comparison includes comparing the design parameters, measured parameters, manually entered parameters, and the reference parameters.
9. (New) The method of claim 6, wherein the second database comprises a matrix in which each row represents critical values of the the parameters relating to the operating state of the reciprocating compressor associated with a specific anomaly.
10. (New) A system for monitoring a reciprocating compressor, comprising:
one or more sensors associated with the reciprocating compressor;
a measuring unit to read data from the one or more sensors corresponding to measured parameters relating to an operating state of the reciprocating compressor; and
a processing unit coupled to the measuring unit, the processing unit to receive the data corresponding to the measured parameters from the measuring unit, reference parameters from a first database, and manually entered data corresponding to manually entered parameters,
wherein the processing unit is configured to perform a first comparison between the measured parameters, manually entered parameters, and the reference parameters, and to perform a second configuration between the manually entered data and absolute values stored in the first database,
wherein the processing unit is configured to detect an anomaly based on the first and second comparisons, and to perform a search in a second database to find a match of previously stored data correlated with predetermined anomalies and corresponding characteristics of the predetermined anomalies if an anomaly is detected in the first and second comparisons, and
wherein the processing unit is configured to send a signal according to the match, the signal indicating characteristics of the detected anomaly of the operating state of the reciprocating compressor.

11. (New) The system of claim 10, wherein the processing unit is operable to obtain data from design specifications of the reciprocating compressor and to perform a third comparison between the data from the design specifications and the data measured by the sensors to determine whether there is design conformity with the design specifications.

12. (New) The system of claim 11, wherein the processing unit is operable to receive the results of the third comparison as inputs for a design program for the reciprocating compressor, wherein outputs of this design program comprises design parameters, and wherein the first comparison includes comparing the design parameters, measured parameters, manually entered parameters, and the reference parameters.

13. (New) The system of claim 10, wherein the second database comprises a matrix in which each row represents critical values of the the parameters relating to the operating state of the reciprocating compressor associated with a specific anomaly.